UNIVERSITY OF ILLINOIS EXTENSION

College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

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a newsletter for commercial growers of fruit and vegetable crops



"We are what we repeatedly do. Excellence, then, is not an act, but a habit." Aristotle

Address any questions or comments regarding this newsletter to the individual authors listed after each article or to its editor, Rick Weinzierl, 217-333-6651, weinzier@uiuc.edu. The ***Illinois Fruit and Vegetable News*** is available on the web at: http://www.ipm.uiuc.edu/ifvn/index.html . To receive email notification of new postings of this newsletter, call or write Rick Weinzierl at the number or address above.

In this issue ...

Crop and Regional Reports

In the south and southwest, temperatures are well below average. Although we had a warming trend over the past weekend, temperatures are back to fall-like conditions going into the beginning of the Illinois State Fair. Speaking of the Illinois State Fair, I just came back from watching the fruit and vegetable judging, and I was saddened to see such a sharp drop in fruit participation due to extreme premium cuts. Everyone hopes that changes can be made to bring growers back to this time-honored competition, because from what I saw today, Illinois is producing top quality fruits and vegetables.

Overlapping with peach harvest in the southern region, Gala apples have been in harvest for at least two weeks. Many plasticulture strawberry growers have received tips and have begun the rooting process. Because of long REI's associated with fumigants under plastic, many growers will be hedging their bets by taking advantage of good weather this week or next to lay plastic ahead of time.

Overall, vegetable production is good throughout the region. Several growers have commented that the tomato crop is not as abundant this year, both due to what appears to be reduced flower set and overall reduced plant growth. Early blight and bacterial diseases have been the prominent tomato diseases this season in the southern region. Until recently, bacterial wilt and Fusarium were the predominant diseases showing up in cucurbits. Dr. Babadoost has recently confirmed downy mildew in pumpkin, and is recommending Cabrio or Pristine for its control.

For those interested in pumpkin production, the Second Annual Pumpkin Field Day will be held at the St. Charles research Station on Thursday, September 9th. The program will start at 9:30 and is expected to end at 4:30. UI Extension specialists and educators will be available to discuss all aspects of pumpkin production including pest management, nutrition, and variety selection. The station is located at 535 Randall Road, St. Charles, IL 60174. Use this address on www.mapquest.com for detailed driving directions.

And ... Chris Doll's notes in this issue mention corking or cork pitting in honeycrisp ... here are a couple of photos of the symptoms.

External and internal symptoms of corking in honeycrisp apples.

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In northern Illinois, day temperatures through August 9 had been in the upper 70s to low 80s, with night temperatures in the upper 40s to 60s. Soil moisture was very low through the last week of July, as most of the area received no rainfall during the latter part of last month. However, most areas received more than 1 inch of rain between August 2 and 4, with greater rainfall of about 3 inches recorded near Kankakee and around Rockford, and about 1 inch in Chicago, Moline, St. Charles, and parts of Lake County.

Apples are more than 3 inches in diameter, and the early maturing varieties such as Red Free, William's Pride, and Prima will be ready for picking during the August 16-20 period. Peaches are also being picked in most orchards. Grapes are sizing well, and cover sprays are continuing in most vineyards.

Harvesting of sweet corn, cabbage, green beans, cole crops, peppers, and summer squash is going on in most farms. Tomato and muskmelon harvesting continues in the Kankakee area. Squash vine borer damage on pumpkins and squash stems very close to the ground was observed in some grower fields. Western corn rootworm beetles and immature stages of squash bugs were observed feeding on blossoms and leaves of pumpkins and squash. Powdery mildew was also observed on pumpkin and squash leaves.

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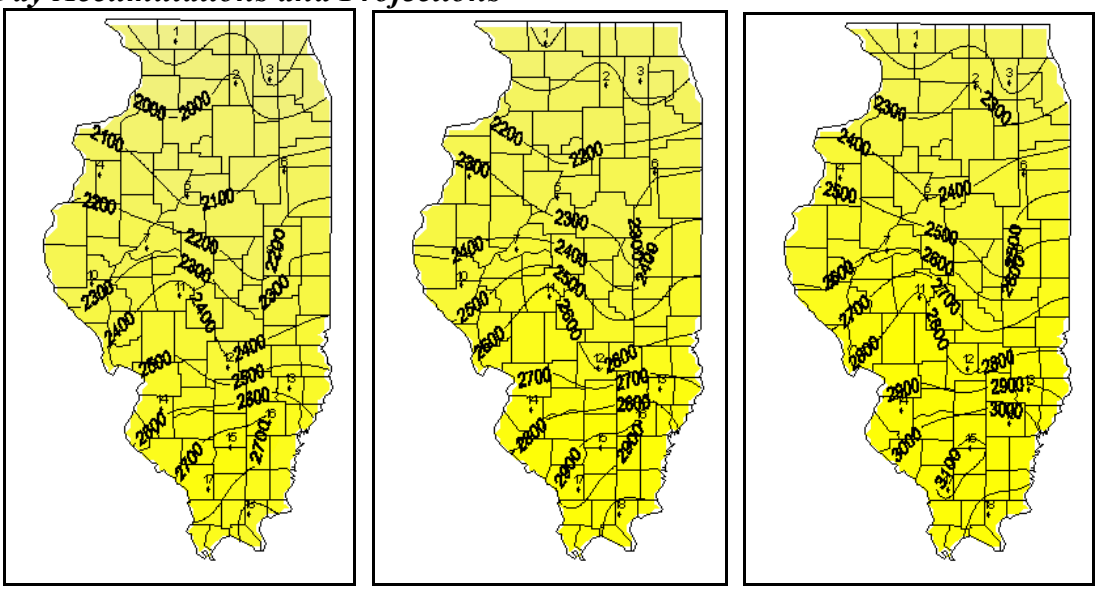
Degree-Day Accumulations and Projections



DD accumulations, base 50 F, for January 1 through Aug 12 (left) and projected through Aug 19 (center) and Aug 26 (right).

No.	Station	County	Base 50 Degree-Days Jan 1 - Aug 12
1	Freeport	Stephenson	1843
2	Dekalb	Dekalb	2035
3	St. Charles	Kane	1874
4	Monmouth	Warren	2189
5	Peoria	Tazewell	2069
6	Stelle	Ford	2137
7	Kilbourne	Mason	2267
8	Bondville	Champaign	2110
9	Champaign	Champaign	2291
10	Perry	Pike	2252
11	Springfield	Sangamon	2471
12	Brownstown	Fayette	2406
13	Olney	Richland	2574
14	Belleville	St. Clair	2586
15	Rend Lake	Jefferson	2754
16	Fairfield	Wayne	2731
17	Carbondale	Jackson	2762
18	Dixon Springs	Pope	2562

To view an up-to-date contour map of accumulated degree-days in Illinois, go to http://www.sws.uiuc.edu/warm/pestdata/choosemap.asp?plc=#, and select a base temperature of 50˚F. To reach the degree-day calculator, go to: http://www.ipm.uiuc.edu/degreedays or http://www.sws.uiuc.edu/warm/agdata.asp.

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Upcoming Meetings

Illinois Pumpkin Growers' Field Day

Commercial pumpkin growers and others interested in pumpkin production are encouraged to come to St Charles, IL on September 9 to participate in the annual Illinois Pumpkin Growers Field Day. This event provides attendees with an opportunity to hear researchers and specialists discuss issues in pumpkin production and show pumpkin field research in progress. This event is sponsored by the University of Illinois and hosted by the St Charles Horticulture Research Center, a field station of the UI Department of Natural Resources and Environmental Sciences. Speakers from the Department of Crop Sciences, UI Extension and Southern Illinois University will also be on hand.

Participants can expect to see a number of projects that will address many of the pressing issues that pumpkin growers face. 2003 was a very challenging season for pumpkin growers in northern Illinois, and some of this research is designed to directly address some of those issues. Dr Mohammed Babadoost, Vegetable Disease Specialist, will be on hand to discuss his work with disease management in jack o'lantern pumpkins. His work includes evaluating a number of fungicide materials and combinations of these materials in various rotations. Growers who have had challenges with weed control will find a number of studies and speakers to address issues such as proper timing and application of Sandea herbicide, potential new broadleaf pre-emergence herbicides, an IR-4 evaluation of Dual herbicide for weed control in pumpkins, and several others.

Dr Alan Walters of Southern Illinois University will be on hand to discuss pumpkin varieties and their performance statewide. Many new pumpkin cultivars have included novel features which Dr. Walters will discuss. Dr. Maurice Ogutu will be on hand to discuss his ongoing work with cover crops in pumpkin production, including a discussion of the performance of the pumpkin crop in a cover crop system. Performance of reflective mulch films for reducing the impact of virus infection of pumpkins will be another project discussed on the tour. Other speakers will also be on hand.

Growers who want to attend should arrive for registration at-the-door by 10:00 am. Tours of research will begin by 10:30 and lunch will be made available for a donation at 12-12:30. Afternoon tours will resume after lunch and continue until approximately 4:00 pm. Participants can find the St Charles Horticulture Research Center 5 miles east of IL Rt 47 on IL Rt 38. At the intersection of Peck Road and Rt 38, turn north. The Research Center will be the first driveway on the left. Participants coming from the east will find Peck Road 1 mile west of Randall Road on Rt 38. Again, turn north and the Research Center will be the first driveway on the left. Questions may be directed to Bill Shoemaker, Superintendent, at 630/584-7254.

Bill Shoemaker (630-584-7254; wshoemak@inil.com)

Notes from Chris Doll

It's a typical Midwestern summer in that there is nothing constant. A number of cool days have been interspersed with a few hot and muggy days. But low-high temperatures have been 63-79, 55-71, and 52.5-65 for August 10-12. I just finished judging the fruits at the Illinois State Fair in the refrigerated box, and then continued to wear the sweat shirt while walking around the fairgrounds.

The number of exhibits at the fair was down significantly due to a decrease in premiums, but the quality was up. Winners of the commercial fruit exhibit were Joe Ringhausen Orchard at Fieldon, and Braetigaum Orchards of Belleville. The Governor's Basket award was awarded to Dave Gilliam of Canton. The champion apple and grape plates went to Lee Elliot of Winchester, and the champion plate of peaches went to Braetigaum Orchards. Some of the grape plates were outstanding and show that good grapes can be grown in areas of non-traditional production. And the pear plates were the best quality for several years.

The harvest season continues to progress rapidly, and we will see if the current cool weather slows it down. Gala harvest has almost passed, Honeycrisp and Golden Supreme are ready, and color is developing in Jons and Reds. Cresthaven peaches are ripe now, and some Concord grapes are about ready for picking too. Fruit disease pressure has eased somewhat with more dry days, and the codling moth trap counts have dropped.

Recent travels have taken me to three abandoned orchard in Southern and Western Illinois where I study what happens when apple and peach trees are neglected. Near Alto Pass, Jonathan and Golden trees are completely brown and nearly defoliated because of scab and cedar apple rust. Lots of curculio and some codling moth have infested the fruits. Near Barry, scab tolerant varieties have lots of green leaves and fruit with moderate insect injury, while most other varieties show various stages of scab problems. Historically, we said Delicious is a scab-susceptible variety, but in this orchard, Fuji and Senshu fruits and leaves were near 100 percent infected, with Goldens and Galas not far behind and Delicious were only moderately infected.

Again, insect injury was moderate except for an explosion of San Jose Scale that was killing many trees. The third orchard had lots of scab on almost every variety, with Liberty being the exception. In this orchard, Honeycrisp were totally defoliated by Japanese beetles, and the beetle's number two favorite apple leaf was Liberty. Unthinned peaches in the Barry orchard were unusual in that peach scab and brown rot problems were minimal, but the fruit size on some ripening varieties measured at 1 1/16 inch in diameter.

It is a good time of the year to observe some apple varieties. I have seen some nice Buckeye and Gale Gala. Golden Supreme is a beautiful apple but likes to drop unless hit with a stop-drop spray. Rubyjon is a knockout for color but needs to be tasted before harvest and harvested before they develop internal browning from excess heat. Reports of cork pitting on Honeycrisp are coming in from the SW area, and my trees are no exception. More calcium will be tried next year.

The August 10 issue of the New Jersey Plant and Pest Advisory includes a brief summary of current thoughts on peach and nectarine varieties by Jerry Frecon. It is good reading for growers in Illinois too.

In Memoriam: Shirley Mills, devoted wife and most helpful partner to Jerry Mills at the Mills Apple Farm in Marine, died of a heart attack on Tuesday, August 10. She was active in the farm enterprise since retirement as a premier youth educator for the University of Illinois Extension Service. Funeral services will be held at the United Church of Christ in Marine at 10:00 am on Saturday, August 14. Memorials may be made to the Illinois 4-H Foundation.

Chris Doll
Edwardsville, Illinois

Vegetable Production and Pest Management

Vegetable Insects

This is the time of year that corn earworm flights generally increase throughout Illinois, and corn earworm control becomes important for sweet corn growers in most of the state. The August 9 issue of the Minnesota Fruit and Vegetable News included the following article by Bill Hutchison and Eric Burkness of the University of Minnesota on European corn borer and corn earworm control in Minnesota. I'm reprinting it especially for its comments on corn earworm spray timing and insecticide choices.

From the Minnesota Fruit and Vegetable News ...

> Thus far, it looks like it could be a "below normal year for European corn borer (ECB). That's the good news; ... now, the troubling news about corn earworm (CEW). Sweet corn is most attractive to CEW Moths during the late tassel and early silking stages. Although CEW moths can lay eggs just about anywhere near the upper half of corn plants, the moths prefer to lay most of their eggs on fresh silks. Following egg hatch, the young (1/8 inch in length) larva will rapidly move down the silk channel to begin feeding on the kernels. Once larvae are feeding within the protection of the husk, it is virtually impossible to control them with insecticide sprays. As silks begin to turn brown, and as ears mature, moths will move to nearby sweet corn that is just beginning to silk. CEW moths will also lay eggs in snap bean, tomato and pepper fields, but sweet corn is usually the preferred host, at least when moths are given a choice.
>
> Given the damage potential for CEW in sweet corn, action thresholds are very low. For both fresh and processing sweet corn, insecticide sprays should begin when 4% of the plants have eggs or young larvae present on the silks. Unlike ECB, CEW eggs are laid singly, and they are easy to see if you have good eyesight (or have a 10X hand lens). However, because it is difficult to search for CEW eggs, especially at low densities, many growers and consultants use the following trap-based, moth-catch thresholds. Egg hatch rate is also highly dependent upon temperature. The following thresholds have been adapted from Ohio State and Cornell University recommendations.

Spray Schedule for CEW, based on Number of CEW Moths Caught/Week in Pheromone Traps (Scentry; White Nylon Mesh; Heliothis model)			
Avg. No. Moths/Trap		**Spray Schedule**	
Per Day	Per Week	<80 degrees F*	>80 degrees F*
<0.2	<1.4	No Spray	No Spray
0.2-0.5	1.4-3.5	every 6 days	every 5 days
0.5-1.0	3.5-7.0	every 5 days	every 4 days
1.0-13	7-91	every 4 days	every 3 days
>13	>91	every 3 days	every 2 days

*Refers to maximum daily air (field) temperature.

Note: Spray program should stop once silks are 90% brown; brown silks are less attractive for new egg-laying.

Insecticide Choice, Selection, and Potential for CEW Resistance:

CEW is more difficult to control than the ECB, and not all of the labeled insecticides, or even all of the labeled pyrethroids, work as well on CEW. The following pyrethroids are generally effective against CEW (see Table). Additional considerations will include pre-harvest interval (PHI), re-entry interval (REI) and cost.

However, we now must consider the possibility of CEW resistance to pyrethroids. As noted last fall (Sept. 12, 2003 Newsletter, http://www.vegedge.umn.edu/mnvegnew/vol5/912cew.htm), following our analysis of multiple insecticide trials in MN and WI, we are concerned that there has been a gradual buildup of pyrethroid resistance in CEW. Last year, in both MN and WI trials, we observed a low level of CEW control (33-45% in small-plot, replicated trials). Industry cooperators also confirmed commercial fields with ca. 10% ear infestations with late-instar CEW. Larvae collected from MN, WI and IL and tested by Dr. Roger Leonard (Louisiana State Univ.) all confirmed various levels of resistance or tolerance to the test pyrethroid (cypermethrin). Fortunately, the resistance levels were variable, but the levels are also similar to those recently reported in LA, TX and other southern states. As most of the Upper Midwest summer infestations of CEW originate in the southern U.S., the selection for resistance appears to be fairly stable in certain segments of the southern U.S. (e.g., cotton/soybean/corn areas). Subsequently, moths emerging from southern crops in late summer, which then migrate to northern states, bring the genes for resistance with them. For additional information from this work, please see the N.C. Branch ESA Web Abstract, March 2004 at :

http://esa.ent.iastate.edu/confreg/?gridaction=viewonepresentation&year=2004&presnum=150&q=Hutchison .

Because of the 2003 results, we have planned to conduct multiple trials this year to assess the potential of new tank-mixes with pyrethroids, or alternative insecticides. As this work is underway, we cannot yet offer recommendations. Given the list of possible, currently labeled options, and based on previous experience in the south (cotton), we are recommending that at least for the first, most critical spray this year, that growers consider tank-mixing Lannate (e.g., at ¾ of full rate) with one of the pyrethroids (mid to full rate). Lannate is a good ovicidal material, but it has very short residual activity. However, for 2004, we are recommending that this material be tank-mixed with one of the pyrethroids for added egg and early instar larval activity. Based on research in cotton, Lannate is also known to provide some adult control.

Labeled insecticides for corn earworm control, 2004.			
Insecticide	**Chemical Name**	**Pre-Harvest Interval**	**Re-Entry Interval**
Asana	esfenvalerate	1 day	12 hours
Ambush	permethrin	1 day	12 hours
Baythroid	cyfluthrin	0 day	12 hours
Capture	bifenthrin	1 day	12 hours
Pounce	permethrin	1 day	12 hours
Warrior	lambda cyhalothrin	1 day	24 hours
Lannate	methomyl	0-3 day	48 hours
Mustang	zeta-cypermethrin	3 day	12 hours
SpinTor	spinosyns	3 day	4 hours

Notes: The pre-harvest interval (PHI) is not a problem for any product. However, the re-entry (REI) should be considered. All pyrethroids (Asana, Ambush, Baythroid, Capture, Pounce, Warrior, Mustang) and Lannate are Restricted Use Pesticides (RUP). Sevin (carbaryl), SpinTor and Bt products are the few non-RUPs labeled for sweet corn. SpinTor and Bt provide good control of ECB, but less consistent control of CEW. Asana is good for CEW control; however, Asana does not provide consistent ECB control.

**Also note the MAXIMUM product/acre/field that can be applied per year. Read labels carefully.

For more information: Refer to the ***2004 Midwest Vegetable Guide* at:

http://www.entm.purdue.edu/entomology/ext/targets/ID/index.htm

Bt Sweet Corn: If fresh-market growers are using Bt Sweet Corn (e.g., Rogers/Syngenta hybrids), they should see about 90% control of CEW (as well as 99-100% control of ECB), without any insecticide applications. Sprays for CEW control will only be needed if moth flights remain heavy throughout the year. If needed for CEW, Bt sweet corn should only need to be treated once, e.g., anytime between 20-25% silk. One spray at early to mid silk may also be necessary to control corn rootworm beetles feeding (clipping) on fresh silks. Both northern and western corn rootworm beetles are usually controlled in non-Bt sweet corn with conventional insecticide sprays. Bt sweet corn (current Bt events) will not control adult corn rootworm beetles.

Organic growers: Although some parasitic wasps can be used for ECB control, parasitic wasps are less effective on CEW. The best cost-effective options are to use a Bt product (Bacillus thuringiensis), such as Dipel, and/or an organic-certified pyrethrum product, such as "Pyganic" (again, starting at first silk). Check with your organic-certification group regarding which Bt and pyrethrum products are certified organic. Dipel, alone, will often provide effective ECB control. However, for CEW, I would consider a pyrethrum product. Pyrethrum products typically have less residual activity than synthetic pyrethroids, and must also be applied on a 3-5 day schedule [or even more frequently], depending on max. field temperatures. *See also federal organic certification information in: August 23, 2002 newsletter at: http://www.vegedge.umn.edu/mnvegnew/vol4/823org.htm .

For related articles on CEW control in sweet corn and Recent Research Reports, please refer to previous issues at the Newsletter site, and type corn earworm in the Search box, at: http://www.vegedge.umn.edu/MNFruit&VegNews/mnindex.htm .

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